

Postdoc position:

Synthesis and characterization of photochromic molecules and materials for optical neuromorphic computing

A 1-year post-doctoral position is open in the framework of the project [CANAPO](#)* funded by the Labex Nano-Saclay, from Paris-Saclay University. The objective of this multidisciplinary project is to assess the feasibility of using photochromic materials in neuronal optical networks in view of photonic machine learning. The main goal of the postdoctoral project is to synthesize organic photochromic molecules, namely azobenzene and diarylethene derivatives, and to integrate them in a polymer material. The post-doctoral researcher will also be in charge of the characterization of photoinduced properties of these molecules and materials. The optimized material will be implemented in a model artificial optical synapse for the weighted connection of two optical neurons.

The postdoctoral fellow will be hired by « Laboratoire de photophysique et photochimie supramoléculaires et macromoléculaires » (PPSM, ENS Paris-Saclay, CNRS). Part of the characterization tasks will take place in « Service de Physique de l'État Condensé » (SPEC, CEA-Saclay, Orme des Merisiers site) the two labs being geographically very close. The project also involves « Centre de Nanosciences et de Nanotechnologies » (C2N, Université Paris-Saclay, CNRS) for implementation of the developed materials into neuronal optical networks.

Main duties and responsibilities:

- Synthesis of organic photochromic molecules
- Functionalization of polymers with organic photochromic molecules
- Thin film fabrication
- Measurement and analysis of photokinetics by transient optical absorption (second to millisecond)
- AFM (atomic force microscopy) characterization of optically induced surface reliefs on polymer films.

Required Knowledge, Skills, and Abilities:

The applicant should have completed a PhD in organic synthesis. Experience in photophysical or photochemical studies of photoactive molecules or materials, as well as in polymer chemistry are additional assets. Excellent communication skills to coordinate regularly with all partners of the CANAPO project are required.

Conditions of eligibility to Labex fundings:

- The applicant should have obtained a PhD less than 5 years ago, in a laboratory different from the partners of this project (C2N, SPEC, PPSM).
- A thematic or geographical mobility of 2 years is required for PhD and postdocs from NanoSaclay member laboratories.

- Possibility of a one-year extension of the contract in prospect

To apply: <https://emploi.cnrs.fr/Offres/CDD/UMR8531-KEINAK-001/Default.aspx?lang=EN>

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* http://nanosaclay.fr/Phoce/Vie_des_labos/News/index.php?id_news=635